Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

February 1, 2011

Mr. Kelly Madalinski
Port of Portland
7200 NE Airport Way
Portland, Oregon 97218

Re: Pipeline and Utility Support Rack Footing Excavation Soil Sampling
Terminal 4 Slip 1 – Operable Unit 1
11040 N. Lombard St
Portland, Oregon
1065-03

Dear Mr. Madalinski:

This letter presents the results of sampling of discolored soil (green sand) encountered during excavation of a footing for the support rack for pipelines and utilities at Terminal 4. The sampling area is located within Operable Unit 1 (the Facility or OU1) at the Terminal 4 Slip 1 Upland Facility in Portland, Oregon (Figures 1 and 2). The Port of Portland (Port) is under a Voluntary Cleanup Program (VCP) Agreement with the Oregon Department of Environmental Quality (DEQ) for Remedial Investigation (RI), Source Control Measures (SCMs), and Feasibility Study (FS) at the Facility.

BACKGROUND

Support Rack Construction

To accommodate tenant operations at Terminal 4, the Port is constructing a new pipeline and utilities support rack. Figure 3 shows the alignment of the new infrastructure. The new infrastructure is above-ground and supported on steel supports. The eastern portion of the infrastructure is elevated to accommodate vehicle traffic. The supports are installed on concrete spread footings. Construction began in February 2010 and was completed in December 2010.

Discovery and Initial Response

On February 24, 2010 during excavation of a footing for the pipeline/utility support rack, the contractor encountered a lens of green sand in the southeast corner of the excavation (Photographs 1 and 2 in Attachment A). Figure 4 shows the location of the green sand lens. The lens is up to approximately 4 inches thick and extends laterally approximately 3 feet to the west (south wall) and approximately 10 feet to the north (east wall).

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Environmental personnel from the Port responded to the site and directed the handling and disposal of the material. Discolored soil from within the excavation was stockpiled on plastic and covered with plastic (Photograph 3). A sample of the excavated soil was collected and analyzed for hydrocarbon identification, metals, polycyclic aromatic hydrocarbons (PAHs), and leachable chromium for disposal profiling. Attachment B contains the analytical laboratory report for these results. Petroleum hydrocarbons were not detected. Eight PAHs were detected at individual concentrations ranging from 9 to 18 micrograms per kilogram (µg/kg). Cadmium, lead, and chromium were detected at 0.23, 80, and 810 mg/kg, respectively. Leachable chromium, using the TCLP procedure, was detected at a concentration of 0.46 mg/L. Based on these results, the stockpiled soil was disposed of at the Waste Management Hillsboro Landfill in Hillsboro, Oregon. Attachment C contains a copy landfill disposal ticket. A total of 5.61 tons of soil were removed for off-site disposal.

SAMPLING ACTIVITIES

Preparatory Activities

The following activities were completed in preparation for the field work:

- Health and Safety Plan (HASP). Ash Creek Associates, Inc. (Ash Creek) prepared a HASP for its personnel involved with the project.
- Site Access. The work activities in OU1 were conducted in coordination Port Marine Operations, Port Security, and tenant schedules.

Soil Sampling

On April 2, 2010, the green sand lens was observed and soil samples were collected in accordance with Ash Creek Standard Operating Procedure 2.2 included in Attachment D. At the time of sampling, the footing for the pipeline/utility support rack had been completed and the excavation partially filled, to a level slightly above the green sand lens. Several inches of soil were removed to expose the lens in the footing excavation sidewall. The green sand lens was observed in the southeast corner of the footing excavation at a depth of 1 foot below the ground surface (bgs). The lens was 1 to 3 inches thick and was exposed up to 3 feet laterally to the north and west from the southeast corner. The area beyond the footing construction is paved, and an existing soil stockpile (unrelated to the pipeline construction project) is located immediately southeast of the footing excavation, preventing further lateral delineation of the sand lens beyond the footing excavation (Photograph 4).

Six soil samples were collected. Three samples were collected from the green sand at 1 foot bgs and three samples were collected from soil beneath the green sand each at a depth of 2 feet bgs. Sample locations are shown on Figure 4.

ANALYTICAL RESULTS

The soil samples collected from the above activities were submitted to Pace Analytical Services, Inc. in Seattle, Washington. The samples were analyzed on a standard turnaround time (TAT). One sample of the green sand (T4S1-TP-SE-1.0) and one sample of the underlying soil (T4S1-TP-SE-2.0) were analyzed for total chromium. The green sand sample was also analyzed for hexavalent chromium. Remaining samples were held for possible additional chemical analysis. Results are listed in Table 1, including the results from the sample collected by the Port, together with relevant screening levels. A copy of the laboratory report is included in Attachment E. A quality assurance review of the data was completed. No qualifiers were attached to the data as a result of the review.

EVALUATION OF RESULTS

Comparing the analytical results in Table 1 with the relevant screening levels, the following conclusions were drawn:

- The concentrations of chromium and hexavalent chromium detected in the green sand are below the human health direct contact screening levels.
- The chromium concentration detected in soil approximately 1 foot below the green sand is consistent with background.
- The detected concentrations of chromium in the green sand exceed the soil/stormwater sediment screening level values (SLVs) in the Joint Source Control Strategy (JSCS) guidance document (DEQ/EPA, 2005) by factors of 7 to 17. The JSCS SLV is based on toxicity effects on aquatic organisms.

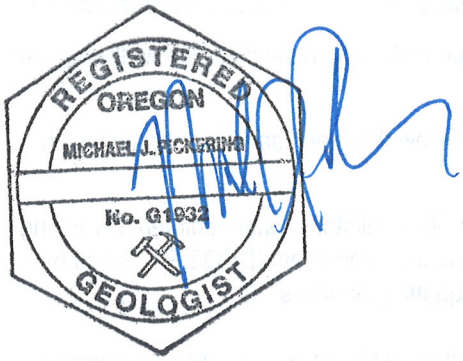
Based on multiple lines of evidence summarized below, the green sand containing chromium does not represent a migration pathway of chromium to the Willamette River.

- The volume of green sand appears to represent a *de minimis q*uantity of material. Based on the observed dimensions of the sand lens, the volume of green sand encountered in the footing excavation was approximately 0.2 cubic yard.
- The chromium concentration in soil 1 foot below the green sand lens is consistent with background concentrations, suggesting that chromium is not migrating from the lens.
- Monitoring well MW-09 installed and sampled as part of the Facility RI (Ash Creek/Newfields, 2007) is located approximately 120 feet downgradient from the green sand lens (Figure 3). Groundwater was sampled from that well three times during the RI. Samples were analyzed for total and dissolved chromium. Chromium was detected in each monitoring event at concentrations ranging from 0.23 to 6.29 µg/L and 0.57 to 1.82 µg/L for total and dissolved concentrations, respectively. The JSCS SLV for groundwater/surface water/stormwater is 100 µg/L.
- The green sand lens is at a depth of 1 foot bgs and the area is flat and paved. Therefore, the area is not subject to erosive forces.

CONCLUSIONS AND RECOMMENDATIONS

During construction of a pipeline/utility support rack at Terminal 4, a green lens of sand was encountered in a footing excavation. Material excavated as part of the construction project was properly profiled and disposed of in an off-site, licensed landfill. Chemical analysis of the green sand found chromium concentrations below human health risk-based levels. The chromium concentrations minimally exceed JSCS SLVs based on protection of aquatic organisms. However, based on the limited volume and low mobility and concentration of the chromium in the green sand lens, it does not represent a migration pathway to the Willamette River.

Sincerely,



Michael J. Pickering, R.G.
Associate Hydrogeologist

for Herbert F. Clough, P.E.
Principal

REFERENCES

Ash Creek Associates/Newfields, 2007. Upland Facility Remedial Investigation Report, Port of Portland - Terminal 4 Slip 1, Portland, Oregon. August 14, 2007.

DEQ/EPA, 2005. Portland Harbor Joint Source Control Strategy – Final (Table 3-1 Updated July 16, 2007). December 2005.

ATTACHMENTS

Table 1 – Soil Analytical Results

Figure 1 – Facility Location Map
Figure 2 – Facility Plan
Figure 3 – Pipeline and Utility Support Rack Alignment Plan
Figure 4 – Soil Sample Locations

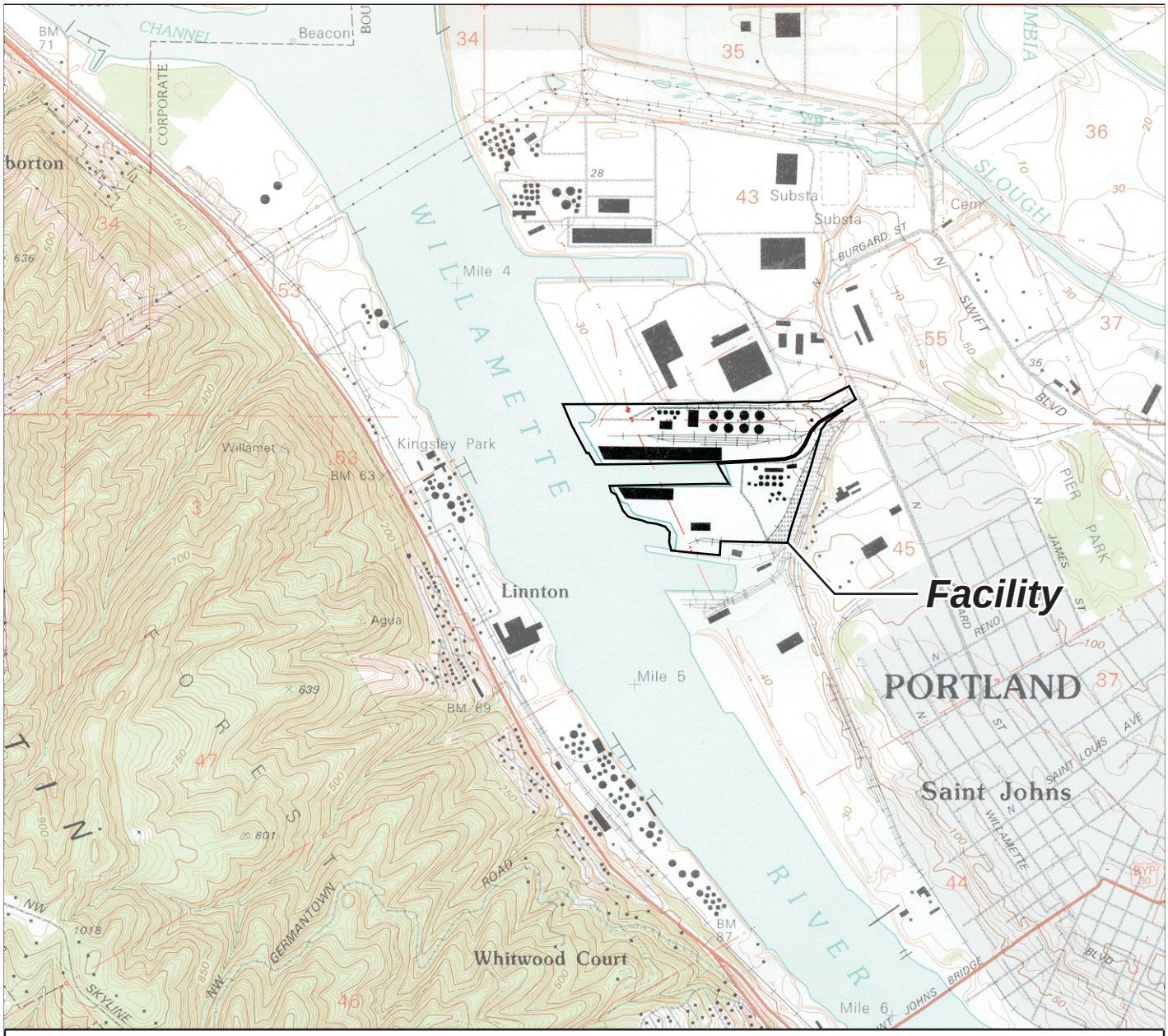
Attachment A – Photograph Log
Attachment B – Soil Profiling Analytical Laboratory Report
Attachment C – Waste Disposal Ticket
Attachment D – Standard Operating Procedure 2.2
Attachment E – Analytical Laboratory Report

Table 1
Soil Analytical Results: Metals
Pipeline and Utility Support Rack Footing Excavation Soil Sampling
Terminal 4 Slip 1 Upland Facility
Portland, Oregon

Sample	Depth in Feet	Concentration in mg/kg	
		Chromium	Hexavalent Chromium
T4-Column 1	Stockpile	811	--
T4S1-TP-SE-1.0	1.0	1,840	30.6 J
T4S1-TP-SE-2.0	2.0	18	--
Background		42	--
DEQ RBC		>100,000	190
JSCS SLV		111	--

Notes:

1. Chromium by EPA Method 6020.
2. Hexavalent chromium by EPA Method 7196.
3. mg/kg (ppm) = Milligrams per kilogram (parts per million).
4. -- = Not analyzed or not available.
5. J = Estimated concentration above the method detection limit and below the method reporting limit.
6. Background concentration from DEQ Northwest Region Clean Fill Screening Table (October 12, 2009).
7. DEQ RBC = Oregon Department of Environmental Quality Risk-based concentration for Occupational Direct Contact (September 2009 Update).
8. JSCS SLV = Portland Harbor Joint Source Control Strategy Table 3-1: Screening Level Values for Soil/Storm Water Sediment (7/16/07 Revision).



Base map prepared from the USGS 7.5-minute quadrangle of Linnton, Oregon, dated 1990.

N

0 2,000 4,000

Approximate Scale in Feet

Facility Location Map

Pipeline and Utility Support Rack Footing Excavation Soil Sampling
Terminal 4 Slip 1 - Operable Unit 1
Portland, Oregon

Ash Creek Associates, Inc. Environmental and Geotechnical Consultants	Project Number 1065-03	Figure 1
	May 2010	

SEE FIGURE 3

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Cereal Foods Processors, Inc.

Former Gatton Slough

Raised Concrete Platform

Operable Unit 1

SLIP 1

Approximate Pier Boundary

Rogers Terminal & Shipping

International Raw Materials, Ltd.

WILLAMETTE RIVER

Operable Unit 2

Kinder Morgan Bulk Terminals

Terminal 4 Slip 3 Upland Facility

SLIP 3

0 300 600

Scale in Feet

Legend:

- Terminal 4 Slip 1 Upland Facility Operable Unit 1* Boundary
- Terminal 4 Slip 1 Upland Facility Operable Unit 2* Boundary
- Terminal 4 Slip 3 Upland Facility Boundary
- Leasehold Boundary
- Former Gatton Slough

Notes: 1) Base map prepared from the URS Draft T4 Slip 1 RI Work Plan, dated May 2004.
2) Horizontal Datum: State Plane Coordinates, Oregon North, NAD 83. Vertical Datum: NVGD 29.
3) *The boundary with the Willamette River is defined by Ordinary Low Water Level (3.4 FT NGVD).

Facility Plan

Pipeline and Utility Support Rack Footing Excavation Soil Sampling
Terminal 4 Slip 1 - Operable Unit 1
Portland, Oregon

Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

Project Number 1065-03

May 2010

Figure 2

N

WILLAMETTE RIVER

MW-24
MW-23
MW-22
Cereal Foods Processors, Inc.
MW-01s
MW-18
MW-17
MW-07
MW-08
MW-02s
Raised Concrete Platform
MW-26
SEE FIGURE 4 FOR FOOTING DETAIL
AT GRADE PIPELINE/ UTILITY RACK
Operable Unit 1
Area of Proposed Infrastructure Improvement
MW-03s
ELEVATED PIPELINE/ UTILITY RACK
MW-09
SLIP 1
Approximate Pier Boundary
MW-10
MW-25
FOOTING (TYPICAL)
International Raw Materials, Ltd.
Operable Unit 2
MW-13
MW-12
MW-11
MW-14
MW-04s
MW-21
Kinder Morgan Bulk Terminals
MW-15
MW-16

0 200 400
Scale in Feet

Legend:

- At Grade Pipeline/Utility Rack
- Elevated Pipeline/Utility Rack and Footings
- MW-08 Monitoring Well Location and Number
- Terminal 4 Slip 1 Upland Facility Operable Unit 1* Boundary
- Terminal 4 Slip 1 Upland Facility Operable Unit 2* Boundary
- Leasehold Boundary
- Former Gatton Slough
- Soil Management Area

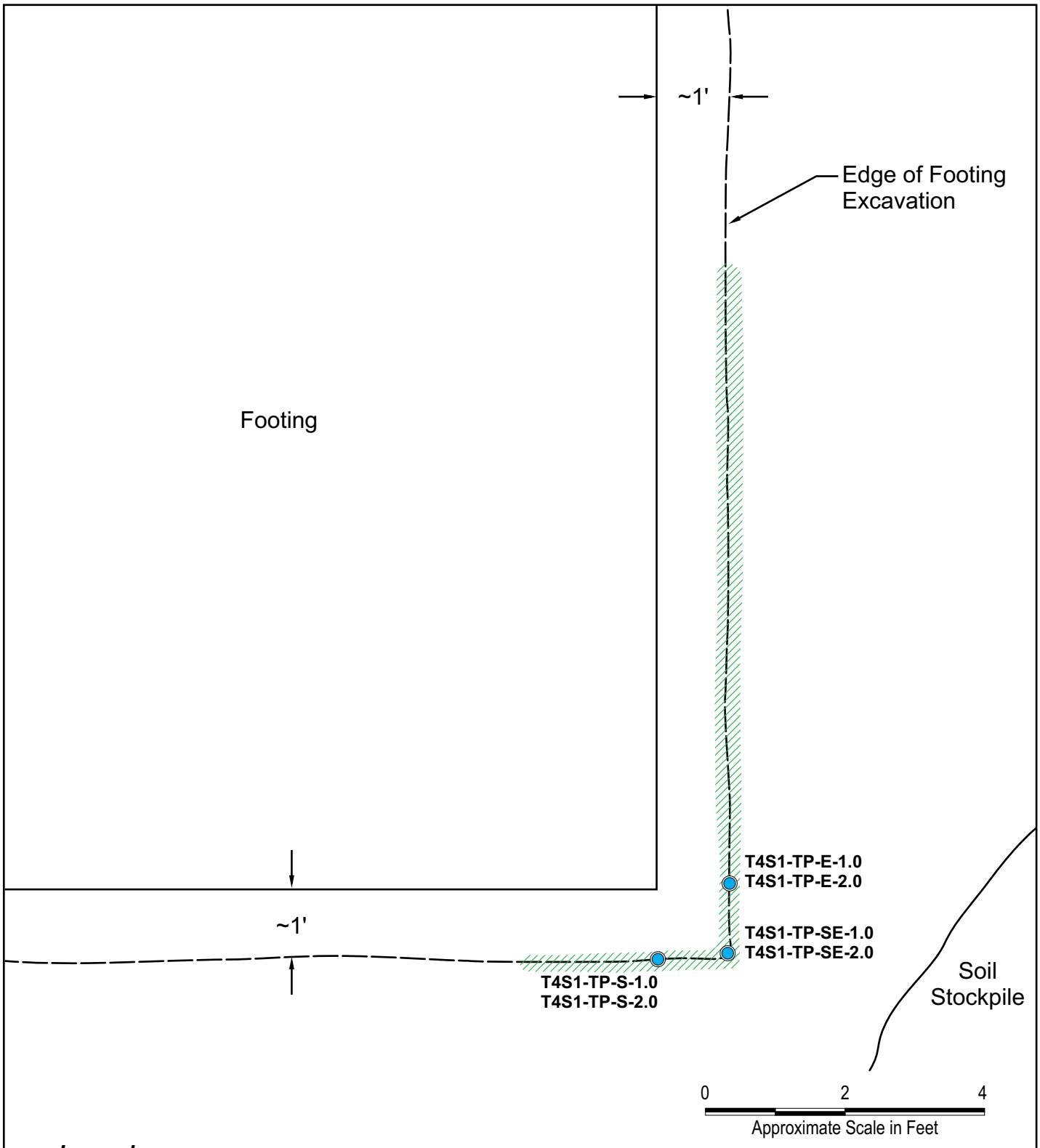
Notes: 1) Base map prepared from the URS Draft T4 Slip 1 RI Work Plan, dated May 2004.
2) Horizontal Datum: State Plane Coordinates, Oregon North, NAD 83. Vertical Datum: NVGD 29.
3) *The boundary with the Willamette River is defined by Ordinary Low Water Level (3.4 FT NGVD).

Pipeline and Utility Support Rack Alignment Plan

Pipeline and Utility Support Rack Footing Excavation Soil Sampling
Terminal 4 Slip 1 - Operable Unit 1
Portland, Oregon

Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

Project Number 1065-03
May 2010
Figure 3



Legend:

T4S1-TP-S-1.0 Soil Sample Location

Observed Limits of Green Sand Lens

Soil Sample Locations

Pipeline and Utility Support Rack Footing Excavation Soil Sampling
Terminal 4 Slip 1 - Operable Unit 1
Portland, Oregon

Ash Creek Associates, Inc. Environmental and Geotechnical Consultants	Project Number 1065-03	Figure 4
	May 2010	

Attachment A

Photograph Log

ATTACHMENT A
PHOTOGRAPH LOG

Project Name: Terminal 4 Slip 1 – Operable Unit 1
Project Number: 1065-03

Client: Port of Portland
Location: Portland, Oregon

Photo No: 1	
Photo Date: 2/24/2010	
Orientation: Southeast	
Description: Lens of green sand in the southeast corner of footing excavation at time of footing excavation.	

Photo No: 2	
Photo Date: 2/24/2010	
Orientation: Southeast	
Description: Close up of lens of green sand.	

ATTACHMENT A
PHOTOGRAPH LOG

Project Name: Terminal 4 Slip 1 – Operable Unit 1
Project Number: 1065-03

Client: Port of Portland
Location: Portland, Oregon

Photo No: 3	
Photo Date: 2/24/2010	
Orientation: Not Applicable	
Description: Discolored soil from within the excavation was stockpiled on plastic and covered with plastic.	

Photo No: 4	
Photo Date: 3/30/2010	
Orientation: Southeast	
Description: The area beyond the footing construction is paved, and an existing soil stockpile (unrelated to the pipeline construction project) is located immediately southeast of the footing excavation.	

Attachment B

Soil Profiling Analytical Laboratory Report

Specialty Analytical

11711 SE Capps Road
Clackamas, OR 97015
(503) 607-1331
Fax (503) 607-1336

February 12, 2010

David Breen
Port of Portland
7201 N. Marine Drive
PO Box 3529
Portland, OR 97214

TEL: (503) 240-2011
FAX:

RE: T4-Column 1

Dear David Breen:

Order No.: 1002051

Specialty Analytical received 1 sample on 2/10/2010 for the analyses presented in the following report.

REVISED REPORT VERSION 1. Please see case narrative for information on revision.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

Cindy Hillyard
Project Manager

Technical Review

Specialty Analytical **Date:** *12-Feb-10*

CLIENT: Port of Portland
Project: T4-Column 1
Lab Order: 1002051

CASE NARRATIVE

Report Revision 1.

This report contains the original results with the addition of TCLP Chromium analysis by EPA 1311/6010 for Specialty Analytical sample number 1002051-01 (Client ID T4-Column 1) at the request of the client.

Specialty Analytical

Date: *12-Feb-10*

CLIENT: Port of Portland
Lab Order: 1002051
Project: T4-Column 1
Lab ID: 1002051-01

Client Sample ID: T4-Column 1
Collection Date: 2/10/2010 8:45:00 AM
Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
NWTPH-HCID		**NWHCID**				Analyst: **jrp**
Gasoline	ND	21.7		mg/Kg-dry	1	2/10/2010
Mineral Spirits	ND	21.7		mg/Kg-dry	1	2/10/2010
Kerosene	ND	54.3		mg/Kg-dry	1	2/10/2010
Diesel	ND	54.3		mg/Kg-dry	1	2/10/2010
Lube Oil	ND	109		mg/Kg-dry	1	2/10/2010
Surr: BFB	102	50-150		%REC	1	2/10/2010
Surr: o-Terphenyl	104	50-150		%REC	1	2/10/2010
TOTAL METALS BY ICP		**E6010**				Analyst: **zau**
Arsenic	ND	2.08		mg/Kg	1	2/11/2010 10:01:05 AM
Barium	ND	1.04		mg/Kg	1	2/11/2010 10:01:05 AM
Cadmium	0.229	0.104		mg/Kg	1	2/11/2010 10:01:05 AM
Chromium	811	0.521		mg/Kg	1	2/11/2010 10:01:05 AM
Lead	79.8	2.08		mg/Kg	1	2/11/2010 10:01:05 AM
Selenium	ND	2.08		mg/Kg	1	2/11/2010 10:01:05 AM
Silver	ND	2.08		mg/Kg	1	2/11/2010 10:01:05 AM
TCLP METALS		**E1311/6010**				Analyst: **zau**
Chromium, TCLP	0.465	0.0250		mg/L	1	2/12/2010 11:36:49 AM
MERCURY, TOTAL		**SW7471**				Analyst: **cz**
Mercury	ND	0.0167		mg/Kg	1	2/10/2010
PAH'S BY GC/MS-OARSIM (8270C)		**8270SIM**				Analyst: **bda**
Acenaphthene	ND	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Acenaphthylene	ND	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Anthracene	ND	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Benz(a)anthracene	10.0	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Benzo(a)pyrene	13.3	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Benzo(b)fluoranthene	18.0	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Benzo(g,h,i)perylene	17.3	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Benzo(k)fluoranthene	ND	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Chrysene	9.33	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Dibenz(a,h)anthracene	ND	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Fluoranthene	11.3	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Fluorene	ND	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Indeno(1,2,3-cd)pyrene	13.3	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Naphthalene	ND	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Phenanthrene	ND	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Pyrene	12.7	6.67		µg/Kg	1	2/11/2010 10:39:00 AM
Surr: 2-Fluorobiphenyl	61.3	42.6-128		%REC	1	2/11/2010 10:39:00 AM
Surr: Nitrobenzene-d5	67.7	21.7-155		%REC	1	2/11/2010 10:39:00 AM
Surr: p-Terphenyl-d14	76.2	44.9-155		%REC	1	2/11/2010 10:39:00 AM

CLIENT: Port of Portland
Work Order: 1002051
Project: T4-Column 1

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MBLK-24963**	SampType: **MBLK**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **2/10/2010**	Run ID: **TJA IRIS_100211A**
Client ID: **ZZZZZ**	Batch ID: **24963**	TestNo: **E6010**		Analysis Date: **2/11/2010**	SeqNo: **656426**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	2.00									
Barium	ND	1.00									
Cadmium	ND	0.100									
Chromium	ND	0.500									
Lead	ND	2.00									
Selenium	ND	2.00									
Silver	0.31	2.00									J

Sample ID: **LCS-24963**	SampType: **LCS**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **2/10/2010**	Run ID: **TJA IRIS_100211A**
Client ID: **ZZZZZ**	Batch ID: **24963**	TestNo: **E6010**		Analysis Date: **2/11/2010**	SeqNo: **656427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	99.86	2.00	100	0	99.9	85.1	107	0	0		
Barium	49	1.00	50	0	98	85.7	110	0	0		
Cadmium	4.86	0.100	5	0	97.2	87.2	109	0	0		
Chromium	25.69	0.500	25	0	103	84	113	0	0		
Lead	99.77	2.00	100	0	99.8	84.9	109	0	0		
Selenium	98.32	2.00	100	0	98.3	88.7	111	0	0		
Silver	47.86	2.00	50	0	95.7	79.3	109	0	0		

Sample ID: **1002051-01BMS**	SampType: **MS**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **2/10/2010**	Run ID: **TJA IRIS_100211A**
Client ID: **T4-Column 1**	Batch ID: **24963**	TestNo: **E6010**		Analysis Date: **2/11/2010**	SeqNo: **656430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	102.1	2.08	104.2	0	98	86.1	109	0	0		
Barium	39.79	1.04	52.08	0	76.4	75	125	0	0		
Cadmium	5.229	0.104	5.208	0.2292	96	86.4	113	0	0		
Chromium	1138	0.521	26.04	811.2	1250	75	121	0	0		S,MC
Lead	186.6	2.08	104.2	79.75	103	84.9	109	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Port of Portland
Work Order: 1002051
Project: T4-Column 1

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **1002051-01BMS**	SampType: **MS**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **2/10/2010**	Run ID: **TJA IRIS_100211A**
Client ID: **T4-Column 1**	Batch ID: **24963**	TestNo: **E6010**		Analysis Date: **2/11/2010**	SeqNo: **656430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	102.1	2.08	104.2	0	98	77.7	116	0	0		
Silver	49.33	2.08	52.08	0.4271	93.9	75	123	0	0		

Sample ID: **1002051-01BMSD**	SampType: **MSD**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **2/10/2010**	Run ID: **TJA IRIS_100211A**
Client ID: **T4-Column 1**	Batch ID: **24963**	TestNo: **E6010**		Analysis Date: **2/11/2010**	SeqNo: **656431**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	88.67	1.85	92.59	0	95.8	86.1	109	102.1	14.1	20	
Barium	33.45	0.926	46.3	0	72.3	75	125	39.79	17.3	20	S,RP
Cadmium	4.454	0.0926	4.63	0.2292	91.2	86.4	113	5.229	16.0	20	
Chromium	1011	0.463	23.15	811.2	863	75	121	1138	11.8	20	S,MC
Lead	161.5	1.85	92.59	79.75	88.3	84.9	109	186.6	14.4	20	
Selenium	88.6	1.85	92.59	0	95.7	77.7	116	102.1	14.2	20	
Silver	42.82	1.85	46.3	0.4271	91.6	75	123	49.33	14.1	20	

Sample ID: **1002051-01BDUP**	SampType: **DUP**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **2/10/2010**	Run ID: **TJA IRIS_100211A**
Client ID: **T4-Column 1**	Batch ID: **24963**	TestNo: **E6010**		Analysis Date: **2/11/2010**	SeqNo: **656429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	1.96	0	0	0	0	0	0	0	20	
Barium	ND	0.980	0	0	0	0	0	0	0	20	
Cadmium	0.2255	0.0980	0	0	0	0	0	0.2292	1.62	20	
Chromium	757.9	0.490	0	0	0	0	0	811.2	6.79	20	
Lead	88.51	1.96	0	0	0	0	0	79.75	10.4	20	
Selenium	ND	1.96	0	0	0	0	0	0	0	20	
Silver	0.3824	1.96	0	0	0	0	0	0.4271	0	20	J

Sample ID: **CCV**	SampType: **CCV**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date:	Run ID: **TJA IRIS_100211A**
Client ID: **ZZZZZ**	Batch ID: **24963**	TestNo: **E6010**		Analysis Date: **2/11/2010**	SeqNo: **656434**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Port of Portland
Work Order: 1002051
Project: T4-Column 1

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **CCV** SampType: **CCV** TestCode: **6010_S** Units: **mg/Kg** Prep Date: Run ID: **TJA IRIS_100211A**
Client ID: **ZZZZZ** Batch ID: **24963** TestNo: **E6010** Analysis Date: **2/11/2010** SeqNo: **656434**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	101	2.00	100	0	101	90	110	0	0		
Barium	50.19	1.00	50	0	100	90	110	0	0		
Cadmium	4.98	0.100	5	0	99.6	90	110	0	0		
Chromium	25.68	0.500	25	0	103	90	110	0	0		
Lead	102.8	2.00	100	0	103	90	110	0	0		
Selenium	98.47	2.00	100	0	98.5	90	110	0	0		
Silver	48.25	2.00	50	0	96.5	90	110	0	0		

Sample ID: **ICV** SampType: **ICV** TestCode: **6010_S** Units: **mg/Kg** Prep Date: Run ID: **TJA IRIS_100211A**
Client ID: **ZZZZZ** Batch ID: **24963** TestNo: **E6010** Analysis Date: **2/11/2010** SeqNo: **656425**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	99.71	2.00	100	0	99.7	90	110	0	0		
Barium	49.58	1.00	50	0	99.2	90	110	0	0		
Cadmium	4.93	0.100	5	0	98.6	90	110	0	0		
Chromium	25.39	0.500	25	0	102	90	110	0	0		
Lead	101.2	2.00	100	0	101	90	110	0	0		
Selenium	96.85	2.00	100	0	96.8	90	110	0	0		
Silver	47.59	2.00	50	0	95.2	90	110	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Port of Portland
Work Order: 1002051
Project: T4-Column 1

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_TCLP

Sample ID: **MBLK-24986**	SampType: **MBLK**	TestCode: **6010_TCLP**	Units: **mg/L**	Prep Date: **2/12/2010**	Run ID: **TJA IRIS_100212A**
Client ID: **ZZZZZ**	Batch ID: **24986**	TestNo: **E1311/6010**		Analysis Date: **2/12/2010**	SeqNo: **656732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, TCLP	ND	0.00500									

Sample ID: **LCS-24986**	SampType: **LCS**	TestCode: **6010_TCLP**	Units: **mg/L**	Prep Date: **2/12/2010**	Run ID: **TJA IRIS_100212A**
Client ID: **ZZZZZ**	Batch ID: **24986**	TestNo: **E1311/6010**		Analysis Date: **2/12/2010**	SeqNo: **656733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, TCLP	0.2537	0.00500	0.25	0	101	93.6	113	0	0		

Sample ID: **1002051-01BMS**	SampType: **MS**	TestCode: **6010_TCLP**	Units: **mg/L**	Prep Date: **2/12/2010**	Run ID: **TJA IRIS_100212A**
Client ID: **T4-Column 1**	Batch ID: **24986**	TestNo: **E1311/6010**		Analysis Date: **2/12/2010**	SeqNo: **656736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, TCLP	1.698	0.0250	1.25	0.465	98.6	93.4	112	0	0		

Sample ID: **1002051-01BMSD**	SampType: **MSD**	TestCode: **6010_TCLP**	Units: **mg/L**	Prep Date: **2/12/2010**	Run ID: **TJA IRIS_100212A**
Client ID: **T4-Column 1**	Batch ID: **24986**	TestNo: **E1311/6010**		Analysis Date: **2/12/2010**	SeqNo: **656737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, TCLP	1.733	0.0250	1.25	0.465	101	93.4	112	1.698	2.07	20	

Sample ID: **1002051-01BDUP**	SampType: **DUP**	TestCode: **6010_TCLP**	Units: **mg/L**	Prep Date: **2/12/2010**	Run ID: **TJA IRIS_100212A**
Client ID: **T4-Column 1**	Batch ID: **24986**	TestNo: **E1311/6010**		Analysis Date: **2/12/2010**	SeqNo: **656735**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, TCLP	0.506	0.0250	0	0	0	0	0	0.465	8.44	20	

Sample ID: **CCV**	SampType: **CCV**	TestCode: **6010_TCLP**	Units: **mg/L**	Prep Date:	Run ID: **TJA IRIS_100212A**
Client ID: **ZZZZZ**	Batch ID: **24986**	TestNo: **E1311/6010**		Analysis Date: **2/12/2010**	SeqNo: **656740**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:
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J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Port of Portland
Work Order: 1002051
Project: T4-Column 1

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_TCLP

Sample ID: **CCV**	SampType: **CCV**	TestCode: **6010_TCLP**	Units: **mg/L**	Prep Date:	Run ID: **TJA IRIS_100212A**
Client ID: **ZZZZZ**	Batch ID: **24986**	TestNo: **E1311/6010**		Analysis Date: **2/12/2010**	SeqNo: **656740**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, TCLP	0.2499	0.00500	0.25	0	100	90	110	0	0		

Sample ID: **ICV**	SampType: **ICV**	TestCode: **6010_TCLP**	Units: **mg/L**	Prep Date:	Run ID: **TJA IRIS_100212A**
Client ID: **ZZZZZ**	Batch ID: **24986**	TestNo: **E1311/6010**		Analysis Date: **2/12/2010**	SeqNo: **656731**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, TCLP	0.2535	0.00500	0.25	0	101	90	110	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Port of Portland
Work Order: 1002051
Project: T4-Column 1

ANALYTICAL QC SUMMARY REPORT

TestCode: HCID_NW

Sample ID: **MB-24965** SampType: **MBLK** TestCode: **HCID_NW** Units: **mg/Kg** Prep Date: **2/10/2010** Run ID: **GC-M_100210A**
Client ID: **ZZZZZ** Batch ID: **24965** TestNo: **NWHCID** Analysis Date: **2/10/2010** SeqNo: **656327**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	3.58	20.0									J
Mineral Spirits	ND	20.0									
Kerosene	ND	50.0									
Diesel	3.67	50.0									J
Lube Oil	ND	100									
Surr: BFB	102.8	0	100	0	103	50	150	0	0		
Surr: o-Terphenyl	103.4	0	100	0	103	50	150	0	0		

Sample ID: **1002051-01ADUP** SampType: **DUP** TestCode: **HCID_NW** Units: **mg/Kg-dry** Prep Date: **2/10/2010** Run ID: **GC-M_100210A**
Client ID: **T4-Column 1** Batch ID: **24965** TestNo: **NWHCID** Analysis Date: **2/10/2010** SeqNo: **656329**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	4.359	21.7	0	0	0	0	0	4.402	0	20	J
Mineral Spirits	ND	21.7	0	0	0	0	0	0	0	20	
Kerosene	ND	54.3	0	0	0	0	0	0	0	20	
Diesel	6.989	54.3	0	0	0	0	0	6.043	0	20	J
Lube Oil	22.74	109	0	0	0	0	0	0	0	20	J

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Port of Portland
Work Order: 1002051
Project: T4-Column 1

ANALYTICAL QC SUMMARY REPORT

TestCode: HG_CTS

Sample ID: **MB-24964**	SampType: **MBLK**	TestCode: **HG_CTS**	Units: **mg/Kg**	Prep Date: **2/10/2010**	Run ID: **CVAA_100210A**
Client ID: **ZZZZZ**	Batch ID: **24964**	TestNo: **SW7471**		Analysis Date: **2/10/2010**	SeqNo: **656214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.0167									

Sample ID: **LCS-24964**	SampType: **LCS**	TestCode: **HG_CTS**	Units: **mg/Kg**	Prep Date: **2/10/2010**	Run ID: **CVAA_100210A**
Client ID: **ZZZZZ**	Batch ID: **24964**	TestNo: **SW7471**		Analysis Date: **2/10/2010**	SeqNo: **656213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.2023	0.0167	0.2083	0	97.1	88.2	113	0	0		

Sample ID: **1002049-01AMS**	SampType: **MS**	TestCode: **HG_CTS**	Units: **mg/Kg**	Prep Date: **2/10/2010**	Run ID: **CVAA_100210A**
Client ID: **ZZZZZ**	Batch ID: **24964**	TestNo: **SW7471**		Analysis Date: **2/10/2010**	SeqNo: **656210**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.2015	0.0152	0.1894	0.01447	98.8	78.1	125	0	0		

Sample ID: **1002049-01AMSD**	SampType: **MSD**	TestCode: **HG_CTS**	Units: **mg/Kg**	Prep Date: **2/10/2010**	Run ID: **CVAA_100210A**
Client ID: **ZZZZZ**	Batch ID: **24964**	TestNo: **SW7471**		Analysis Date: **2/10/2010**	SeqNo: **656211**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.1934	0.0143	0.1786	0.01447	100	78.1	125	0.2015	4.10	20	

Sample ID: **1002049-01ADUP**	SampType: **DUP**	TestCode: **HG_CTS**	Units: **mg/Kg**	Prep Date: **2/10/2010**	Run ID: **CVAA_100210A**
Client ID: **ZZZZZ**	Batch ID: **24964**	TestNo: **SW7471**		Analysis Date: **2/10/2010**	SeqNo: **656209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.01102	0.0157	0	0	0	0	0	0.01447	0	20	J

Sample ID: **CCV**	SampType: **CCV**	TestCode: **HG_CTS**	Units: **mg/Kg**	Prep Date: **2/10/2010**	Run ID: **CVAA_100210A**
Client ID: **ZZZZZ**	Batch ID: **24964**	TestNo: **SW7471**		Analysis Date: **2/10/2010**	SeqNo: **656215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:
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J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Port of Portland
Work Order: 1002051
Project: T4-Column 1

ANALYTICAL QC SUMMARY REPORT

TestCode: HG_CTS

Sample ID: **CCV** SampType: **CCV** TestCode: **HG_CTS** Units: **mg/Kg** Prep Date: **2/10/2010** Run ID: **CVAA_100210A**
Client ID: **ZZZZZ** Batch ID: **24964** TestNo: **SW7471** Analysis Date: **2/10/2010** SeqNo: **656215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.1991	0.0167	0.2083	0	95.6	90	110	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Port of Portland
Work Order: 1002051
Project: T4-Column 1

ANALYTICAL QC SUMMARY REPORT

TestCode: PAHLL_S

Sample ID: **MBLK-24977**	SampType: **MBLK**	TestCode: **PAHLL_S**	Units: **µg/Kg**	Prep Date: **2/11/2010**	Run ID: **5973G_100211A**
Client ID: **ZZZZZ**	Batch ID: **24977**	TestNo: **8270SIM**		Analysis Date: **2/11/2010**	SeqNo: **656438**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	0.6667	6.67									J
Acenaphthylene	0.6667	6.67									J
Anthracene	0.6667	6.67									J
Benz(a)anthracene	4	6.67									J
Benzo(a)pyrene	2	6.67									J
Benzo(b)fluoranthene	2	6.67									J
Benzo(g,h,i)perylene	2.667	6.67									J
Benzo(k)fluoranthene	2.667	6.67									J
Chrysene	2.667	6.67									J
Dibenz(a,h)anthracene	2	6.67									J
Fluoranthene	1.333	6.67									J
Fluorene	0.6667	6.67									J
Indeno(1,2,3-cd)pyrene	2	6.67									J
Naphthalene	0.6667	6.67									J
Phenanthrene	0.6667	6.67									J
Pyrene	1.333	6.67									J
Surr: 2-Fluorobiphenyl	4297	0	6667	0	64.5	42.6	128	0	0		
Surr: Nitrobenzene-d5	5379	0	6667	0	80.7	21.7	155	0	0		
Surr: p-Terphenyl-d14	5043	0	6667	0	75.6	44.9	155	0	0		

Sample ID: **LCS-24977**	SampType: **LCS**	TestCode: **PAHLL_S**	Units: **µg/Kg**	Prep Date: **2/11/2010**	Run ID: **5973G_100211A**
Client ID: **ZZZZZ**	Batch ID: **24977**	TestNo: **8270SIM**		Analysis Date: **2/11/2010**	SeqNo: **656437**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	294.7	6.67	333.3	0	88.4	39.6	107	0	0		
Benzo(g,h,i)perylene	388.7	6.67	333.3	0	117	49.7	135	0	0		
Chrysene	388	6.67	333.3	0	116	57.1	130	0	0		
Naphthalene	268	6.67	333.3	0	80.4	29.1	109	0	0		
Phenanthrene	309.3	6.67	333.3	0	92.8	48.4	115	0	0		
Pyrene	382.7	6.67	333.3	0	115	47.2	134	0	0		

Qualifiers:
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B - Analyte detected in the associated Method Blank

CLIENT: Port of Portland
Work Order: 1002051
Project: T4-Column 1

ANALYTICAL QC SUMMARY REPORT

TestCode: PAHLL_S

Sample ID: **1002051-01BMS** SampType: **MS** TestCode: **PAHLL_S** Units: **µg/Kg** Prep Date: **2/11/2010** Run ID: **5973G_100211A**
Client ID: **T4-Column 1** Batch ID: **24977** TestNo: **8270SIM** Analysis Date: **2/11/2010** SeqNo: **656439**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	321.3	6.67	333.3	0.6667	96.2	33.7	111	0	0		
Benzo(g,h,i)perylene	419.3	6.67	333.3	17.33	121	15	128	0	0		
Chrysene	388	6.67	333.3	9.333	114	37.5	125	0	0		
Naphthalene	272	6.67	333.3	2	81	27.7	108	0	0		
Phenanthrene	354.7	6.67	333.3	6	105	20.2	139	0	0		
Pyrene	399.3	6.67	333.3	12.67	116	26.8	142	0	0		

Sample ID: **1002051-01BMSD** SampType: **MSD** TestCode: **PAHLL_S** Units: **µg/Kg** Prep Date: **2/11/2010** Run ID: **5973G_100211A**
Client ID: **T4-Column 1** Batch ID: **24977** TestNo: **8270SIM** Analysis Date: **2/11/2010** SeqNo: **656441**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	278	6.67	333.3	0.6667	83.2	33.7	111	321.3	14.5	20	
Benzo(g,h,i)perylene	390.7	6.67	333.3	17.33	112	15	128	419.3	7.08	20	
Chrysene	356.7	6.67	333.3	9.333	104	37.5	125	388	8.42	20	
Naphthalene	207.3	6.67	333.3	2	61.6	27.7	108	272	27.0	20	R
Phenanthrene	328.7	6.67	333.3	6	96.8	20.2	139	354.7	7.61	20	
Pyrene	368	6.67	333.3	12.67	107	26.8	142	399.3	8.17	20	

Sample ID: **CCV-24977** SampType: **CCV** TestCode: **PAHLL_S** Units: **µg/Kg** Prep Date: Run ID: **5973G_100211A**
Client ID: **ZZZZZ** Batch ID: **24977** TestNo: **8270SIM** Analysis Date: **2/11/2010** SeqNo: **656436**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	148	6.67	133.3	0	111	70	130	0	0		
Acenaphthylene	170	6.67	133.3	0	128	70	130	0	0		
Anthracene	162	6.67	133.3	0	122	70	130	0	0		
Benz(a)anthracene	163.3	6.67	133.3	0	122	70	130	0	0		
Benzo(a)pyrene	134.7	6.67	133.3	0	101	70	130	0	0		
Benzo(b)fluoranthene	143.3	6.67	133.3	0	108	70	130	0	0		
Benzo(g,h,i)perylene	129.3	6.67	133.3	0	97	70	130	0	0		
Benzo(k)fluoranthene	172	6.67	133.3	0	129	70	130	0	0		
Chrysene	150.7	6.67	133.3	0	113	70	130	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Port of Portland
Work Order: 1002051
Project: T4-Column 1

ANALYTICAL QC SUMMARY REPORT

TestCode: PAHLL_S

Sample ID: **CCV-24977**	SampType: **CCV**	TestCode: **PAHLL_S**	Units: **µg/Kg**	Prep Date:	Run ID: **5973G_100211A**
Client ID: **ZZZZZ**	Batch ID: **24977**	TestNo: **8270SIM**		Analysis Date: **2/11/2010**	SeqNo: **656436**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenz(a,h)anthracene	130	6.67	133.3	0	97.5	70	130	0	0		
Fluoranthene	171.3	6.67	133.3	0	128	70	130	0	0		
Fluorene	170	6.67	133.3	0	128	70	130	0	0		
Indeno(1,2,3-cd)pyrene	133.3	6.67	133.3	0	100	70	130	0	0		
Naphthalene	148.7	6.67	133.3	0	112	70	130	0	0		
Phenanthrene	151.3	6.67	133.3	0	114	70	130	0	0		
Pyrene	157.3	6.67	133.3	0	118	70	130	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

KEY TO FLAGS

A This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards.

A1 This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.

A2 This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.

A3 The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.

B The blank exhibited a positive result greater than the reporting limit for this compound.

CN See Case Narrative.

D Result is based from a dilution.

E Result exceeds the calibration range for this compound. The result should be considered as estimate.

F The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.

H Sample was analyzed outside recommended hold time.

HT At clients request, sample was analyzed outside recommended hold time.

J The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.

K Diesel result is biased high due to amount of Oil contained in the sample.

L Diesel result is biased high due to amount of Gasoline contained in the sample.

M Oil result is biased high due to amount of Diesel contained in the sample.

N Gasoline result is biased high due to amount of Diesel contained in the sample.

MC Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI Result is outside control limits due to matrix interference.

MSA Value determined by Method of Standard Addition.

O Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.

P Detection levels of Methylene Chloride may be laboratory contamination, due to previous analysis or background levels.

Q Detection levels elevated due to sample matrix.

R RPD control limits were exceeded.

RF Duplicate failed due to result being at or near the method-reporting limit.

RP Matrix spike values exceed established QC limits, post digestion spike is in control.

S Recovery is outside control limits.

SC Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.

* The result for this parameter was greater that the maximum contaminant level of the TCLP regulatory limit.

CHAIN OF CUSTODY RECORD

Specialty Analytical
11711 SE Capps Road
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

EMAIL TO:
David.Breen@PortofPortland
Jenifer.Fonseca-Littrell@Port

Contact Person/Project Manager: David Breen
Company: Port of Portland
Address: 7201 N Marine Dr
Portland, OR 97203
Phone: 503 240-2011 Fax: 503 548 5916
Project No.: Project Name:
Project Site Location OR: X WA: Other:
Invoice To: P.O. No.:

Collected By:
Signature: David J Breen
Printed: David Breen

Signature:
Printed:

Turn Around Time
☐ Normal 5-7 Business Days
☒ Rush Need results 2/11 mid-day
Specify
Rush Analyses Must Be Scheduled With The Lab In Advance

For Laboratory Use
Lab Job No. 1002057
Shipped Via Specialty
Air Bill No.
Temperature On Receipt 6 °C
Specialty Analytical Containers? Y / N
Specialty Analytical Trip Blanks? Y / N

Date	Time	Sample I.D.	Matrix	No. of Containers	Analyses: TPH-HCID	PAHs - 8270	RCRA 8 Metals	Comments	Lab I.D.
2/10/10	8:45	T4-Column 1	Soil	2	X	X	X		

Relinquished By:	Date	Time	Received By:	Relinquished By:	Date	Time
Company: Port of Portland	2/10/10	1021	Company: Specialty	Company:		

Unless Reclaimed, Samples Will Be Disposed of 60 Days After Receipt.
Samples held beyond 60 days subject to storage fee(s)

Received For Lab By: Nikki B — Date: 2/10/10 — Time: 1211

Copies: White-Original Yellow-Project File Pink-Customer Copy

Attachment C

Waste Disposal Ticket

WASTE MANAGEMENT

Hillsboro Landfill, Inc
3205 SE Minter Bridge
Hillsboro, OR, 97123
Ph: (503)-640-9427

Original
Ticket# 1236173

Customer Name C and W Grading C & W Grading
Ticket Date 03/24/2010
Payment Type Credit Account
Manual Ticket#
Hauling Ticket#
Route
State Waste Code
Manifest na
Destination
PO 100955
Profile 1051960R (PCS)
Generator OR-PORTOFPORTLANDT4 PORT OF PORTLAND T-4

Carrier DB TRUCKING
Vehicle# 52
Container
Driver bill
Check#
Billing # 0002648
Gen EPA ID

Grid

Volume

	Time	Scale	Operator	Inbound		
In	03/24/2010 11:28:10	Inbound 2	ajm		Gross	36500 lb*
Out	03/24/2010 11:28:10		ajm		Tare	25280 lb*
			* Manual Weight		Net	11220 lb
					Tons	5.61

Comments

Consumer Comments? We want to know. Please call.

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Cont Soil Pet-RGC-	100	5.61	Tons	38.00		$213.18	MULT-IN
2	AF1-Approval Fee S	100	1	Each	35.00		$35.00	MULT-IN
3	ENVFEE$3.80-Env Fe	100	5.61	Tons	3.80		$21.32	MULT-IN

Total Tax
Total Ticket $269.50

Driver's Signature

I03WM

Attachment D

Standard Operating Procedure 2.2

1. PURPOSE AND SCOPE

This Standard Operating Procedure (SOP) describes the methods used for obtaining surface soil samples for physical and/or chemical analysis. For purposes of this SOP, surface soil (including shallow subsurface soil) is loosely defined as soil that is present within 3 feet of the ground surface at the time of sampling. Various types of sampling equipment are used to collect surface soil samples including spoons, scoops, trowels, shovels, and hand augers.

2. EQUIPMENT AND MATERIALS

The following materials are necessary for this procedure:

- Spoons, scoops, trowels, shovels, and/or hand augers. Stainless steel is preferred.
- Stainless steel bowls
- Laboratory-supplied sample containers
- Field documentation materials
- Decontamination materials
- Personal protective equipment (as required by Health and Safety Plan)

3. METHODOLOGY

Project-specific requirements will generally dictate the preferred type of sampling equipment used at a particular site. The following parameters should be considered: sampling depth, soil density, soil moisture, use of analyses (e.g., chemical versus physical testing), type of analyses (e.g., volatile versus non-volatile). Analytical testing requirements will indicate sample volume requirements that also will influence the selection of the appropriate type of sampling tool. The project sampling plan should define the specific requirements for collection of surface soil samples at a particular site.

Collection of Samples

- Volatile Analyses. Surface soil sampling for volatile organics analysis (VOA) is different than other routine physical or chemical testing because of the potential loss of volatiles during sampling. To limit volatile loss, the soil sample must be obtained as quickly and as directly as possible. If a VOA sample is to collected as part of a multiple analyte sample, the VOA sample portion will be obtained first. The VOA sample should be obtained from a discrete portion of the entire collected sample and should not be composited or homogenized. Sample bottles should be filled to capacity, with no headspace. Specific procedures for collecting VOA samples using the EPA Method 5035 are discussed in SOP 2-7.
- Other Analyses. Once the targeted sample interval has been collected, the soil sample will be thoroughly homogenized in a stainless steel bowl prior to bottling. Sample homogenizing is accomplished by manually mixing the entire soil sample in the stainless steel bowl with the sampling tool or with a clean teaspoon or spatula until a uniform mixture is achieved. If packing of the samples into the bottles is necessary, a clean stainless steel teaspoon or spatula may be used.

General Sampling Procedure:

- Decontaminate sampling equipment in accordance with the Sampling and Analysis Plan (SAP) before and after each individual soil sample.
- Remove surface debris that blocks access to the actual soil surface or loosen dense surface soils, such as those encountered in heavy traffic areas. If sampling equipment is used to remove surface debris,

the equipment should be decontaminated prior to sampling to reduce the potential for sample interferences.

- When using a hand auger, push and rotate downward until the auger becomes filled with soil. Usually a 6- to 12-inch long core of soil is obtained each time the auger is inserted. Once filled, remove the auger from the ground and empty into a stainless steel bowl. If a VOA sample is required, the sample should be taken directly from the auger using a teaspoon or spatula and/or directly filling the sample container from the auger. Repeat the augering process until the desired sample interval has been augered and placed into the stainless steel bowl.

Backfilling Sample Locations:

Backfill in accordance with federal and state regulations including OAR 690-240 (e.g., bentonite requirements). The soils from the excavation will be used as backfill unless project-specific or state requirements include the use of clean backfill material.

Attachment E

Analytical Laboratory Report

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

May 04, 2010

Michael Pickering
Ash Creek Associates
3015 SW First Avenue
Portland, OR 97201

RE: Project: T4S1
Pace Project No.: 253443

Dear Michael Pickering:
Enclosed are the analytical results for sample(s) received by the laboratory on April 06, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

CERTIFICATIONS

Project: T4S1
Pace Project No.: 253443

Minnesota Certification IDs

North Carolina Certification #: 530
Arizona Certification #: AZ-0014
California Certification #: 01155CA
Florida/NELAP Certification #: E87605
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Wisconsin Certification #: 999407970
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
Alaska Certification #: UST-078
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
Louisiana Certification #: LA080009

Washington Certification IDs

Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01-09
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C1229
940 South Harney Street Seattle, WA 98108

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE SUMMARY

Project: T4S1
Pace Project No.: 253443

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253443001	**T4S1-TP-SE-1.0**	Solid	04/02/10 15:25	04/06/10 11:20
253443002	**T4S1-TP-SE-2.0**	Solid	04/02/10 15:30	04/06/10 11:20
253443003	**T4S1-TP-E-1.0**	Solid	04/02/10 15:35	04/06/10 11:20
253443004	**T4S1-TP-E-2.0**	Solid	04/02/10 15:40	04/06/10 11:20
253443005	**T4S1-TP-S-1.0**	Solid	04/02/10 15:45	04/06/10 11:20
253443006	**T4S1-TP-S-2.0**	Solid	04/02/10 15:50	04/06/10 11:20

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE ANALYTE COUNT

Project: T4S1
Pace Project No.: 253443

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253443001	**T4S1-TP-SE-1.0**	EPA 6020	CJS	1	PASI-M
		ASTM D2974-87	KRK	1	PASI-S
		EPA 7196	BPR	1	PASI-S
253443002	**T4S1-TP-SE-2.0**	EPA 6020	RJS	1	PASI-M
		ASTM D2974-87	KRK	1	PASI-S
253443003	**T4S1-TP-E-1.0**	ASTM D2974-87	KRK	1	PASI-S
253443004	**T4S1-TP-E-2.0**	ASTM D2974-87	KRK	1	PASI-S
253443005	**T4S1-TP-S-1.0**	ASTM D2974-87	KRK	1	PASI-S
253443006	**T4S1-TP-S-2.0**	ASTM D2974-87	KRK	1	PASI-S

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

PROJECT NARRATIVE

Project: T4S1
Pace Project No.: 253443

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: Port of Portland - Ash Creek
Date: May 04, 2010

General Information:
2 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

PROJECT NARRATIVE

Project: T4S1
Pace Project No.: 253443

Method: **EPA 7196**
Description: 7196 Chromium, Hexavalent
Client: Port of Portland - Ash Creek
Date: May 04, 2010

General Information:
1 sample was analyzed for EPA 7196. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 7196 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1472

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253443001

M2: Matrix spike recovery was below QC limits due to sample dilution. Data acceptance based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 25767)
  - Chromium, Hexavalent

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

ANALYTICAL RESULTS

Project: T4S1
Pace Project No.: 253443

Sample: T4S1-TP-SE-1.0 **Lab ID: 253443001** Collected: 04/02/10 15:25 Received: 04/06/10 11:20 Matrix: Solid
Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Chromium	**1840**	mg/kg	4.2	1.2	200	04/09/10 16:04	04/14/10 15:31	7440-47-3	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**8.8**	%	0.10	0.10	1		04/07/10 09:24		
7196 Chromium, Hexavalent	Analytical Method: EPA 7196 Preparation Method: EPA 7196								
Chromium, Hexavalent	**30.6J**	mg/kg	87.1	7.8	10	04/14/10 14:45	04/15/10 14:43	18540-29-9	

Sample: T4S1-TP-SE-2.0 **Lab ID: 253443002** Collected: 04/02/10 15:30 Received: 04/06/10 11:20 Matrix: Solid
Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Chromium	**18.0**	mg/kg	0.42	0.12	20	04/29/10 08:41	04/30/10 13:57	7440-47-3	B
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**11.4**	%	0.10	0.10	1		04/07/10 09:25		

Sample: T4S1-TP-E-1.0 **Lab ID: 253443003** Collected: 04/02/10 15:35 Received: 04/06/10 11:20 Matrix: Solid
Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**9.7**	%	0.10	0.10	1		04/07/10 09:25		

Sample: T4S1-TP-E-2.0 **Lab ID: 253443004** Collected: 04/02/10 15:40 Received: 04/06/10 11:20 Matrix: Solid
Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**12.5**	%	0.10	0.10	1		04/07/10 09:26		

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Seattle, WA 98108
(206)767-5060

ANALYTICAL RESULTS

Project: T4S1
Pace Project No.: 253443

Sample: T4S1-TP-S-1.0 **Lab ID: 253443005** Collected: 04/02/10 15:45 Received: 04/06/10 11:20 Matrix: Solid
Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**10.3**	%	0.10	0.10	1		04/07/10 09:27		

Sample: T4S1-TP-S-2.0 **Lab ID: 253443006** Collected: 04/02/10 15:50 Received: 04/06/10 11:20 Matrix: Solid
Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**11.2**	%	0.10	0.10	1		04/07/10 09:27		

Pace Analytical Services, Inc.
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Seattle, WA 98108
(206)767-5060

QUALITY CONTROL DATA

Project: T4S1
Pace Project No.: 253443

QC Batch: ICPM/19903
QC Batch Method: EPA 6020
Analysis Method: EPA 6020
Analysis Description: 6020 MET
Associated Lab Samples: 253443001

METHOD BLANK: 771280 Matrix: Solid
Associated Lab Samples: 253443001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium	mg/kg	<0.096	0.34	04/13/10 13:05	

LABORATORY CONTROL SAMPLE: 771281

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium	mg/kg	14.7	16.9	115	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 771282 771283

Parameter	Units	5036404009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/kg	19.7	18.3	17.5	35.9	37.6	88	102	70-130	5	20	

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QUALITY CONTROL DATA

Project: T4S1
Pace Project No.: 253443

QC Batch: ICPM/20208
QC Batch Method: EPA 6020
Analysis Method: EPA 6020
Analysis Description: 6020 MET
Associated Lab Samples: 253443002

METHOD BLANK: 781581 Matrix: Solid
Associated Lab Samples: 253443002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium	mg/kg	0.23J	0.41	04/30/10 13:25	

LABORATORY CONTROL SAMPLE: 781582

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium	mg/kg	16.4	17.7	108	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 781583 781584

Parameter	Units	5036787001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/kg	2.8	24.4	23.7	27.7	27.1	102	103	70-130	2	20	

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QUALITY CONTROL DATA

Project: T4S1
Pace Project No.: 253443

QC Batch: PMST/1201 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 253443001, 253443002, 253443003, 253443004, 253443005, 253443006

SAMPLE DUPLICATE: 25427

Parameter	Units	253443001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	8.8	9.1	4	30	

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QUALITY CONTROL DATA

Project: T4S1
Pace Project No.: 253443

QC Batch:	WETA/1472	Analysis Method:	EPA 7196
QC Batch Method:	EPA 7196	Analysis Description:	7196 Chromium, Hexavalent

Associated Lab Samples: 253443001

Pace Analytical Services, Inc.
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Seattle, WA 98108
(206)767-5060

QUALIFIERS

Project: T4S1
Pace Project No.: 253443

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: T4S1
Pace Project No.: 253443

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
253443001	**T4S1-TP-SE-1.0**	EPA 6020	ICPM/19903	EPA 6020	ICPM/8161
253443002	**T4S1-TP-SE-2.0**	EPA 6020	ICPM/20208	EPA 6020	ICPM/8282
253443001	**T4S1-TP-SE-1.0**	ASTM D2974-87	PMST/1201		
253443002	**T4S1-TP-SE-2.0**	ASTM D2974-87	PMST/1201		
253443003	**T4S1-TP-E-1.0**	ASTM D2974-87	PMST/1201		
253443004	**T4S1-TP-E-2.0**	ASTM D2974-87	PMST/1201		
253443005	**T4S1-TP-S-1.0**	ASTM D2974-87	PMST/1201		
253443006	**T4S1-TP-S-2.0**	ASTM D2974-87	PMST/1201		
253443001	**T4S1-TP-SE-1.0**	EPA 7196	WETA/1472	EPA 7196	WETA/1480
253443001	**T4S1-TP-SE-1.0**	EPA 7196	WETA/1472	EPA 7196	WETA/

Sample Condition Upon Receipt

Pace Analytical

Client Name: Ash Creek / port of portland Project # 253443

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other PCS

Optional
Proj. Due Date:
Proj. Name:

Tracking #: 1275185

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ None ☐ Other

Thermometer Used: Horiba 132013 Type of Ice: Wet (Blue) None ☐ Samples on ice, cooling process has begun

Cooler Temperature: 5.2 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 4/6/10 AR

Comments:

Chain of Custody Present:	☑Yes	☐No	☐N/A
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A
Sampler Name & Signature on COC:	☐Yes	☑No	☐N/A
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A
Short Hold Time Analysis (<72hr):	☑Yes	☐No	☐N/A
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A
Sufficient Volume:	☑Yes	☐No	☐N/A
Correct Containers Used:	☑Yes	☐No	☐N/A
-Pace Containers Used:	☑Yes	☐No	☐N/A
Containers Intact:	☑Yes	☐No	☐N/A
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A
Sample Labels match COC:	☑Yes	☐No	☐N/A
-Includes date/time/ID/Analysis Matrix: SL			
All containers needing preservation have been checked.	☐Yes	☐No	☑N/A
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes	☐No	☑N/A
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes	☑No	
Samples checked for dechlorination:	☐Yes	☐No	☑N/A
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A
Trip Blank Present:	☐Yes	☐No	☑N/A
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A
Pace Trip Blank Lot # (if purchased):			

1.
2.
3.
4.
5.
6. CR6 (hexavalent CR)
7.
8.
9.
10.
11.
12.
13.

Initial when completed	Lot # of added preservative

14.
15.
16.

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Lisa Dominiginhi Date/Time: 4-6-10 @ 1:14

Comments/ Resolution: left message for M. Pickering - out today.
600 for total Cr per Lisa.
4-6-10 @ 2:03 E mail Michael asking for test with lower limits.

Project Manager Review: 4-6-10 Date:

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Heidi Geri - RE: 253443_T4S1

From: "Michael Pickering" <mpickering@ashcreekassociates.com>
To: "Heidi Geri" <Heidi.Geri@pacelabs.com>
Date: 4/23/2010 9:45 AM
Subject: RE: 253443_T4S1

Just when you think the decision is final. Please run sample 253443002 (T4S1-TP-SE-2.0) for total chromium. After draft results we will decide on SPLP as a potential follow-up.

Thanks!

*Michael

From: Heidi Geri [mailto:Heidi.Geri@pacelabs.com]
Sent: Wednesday, April 21, 2010 1:10 PM
To: Michael Pickering
Subject: RE: 253443_T4S1

Thanks. I'll cancel the Hold samples.

Thank you,

Heidi Geri
Project Manager
Pace Analytical

940 S Harney St
Seattle WA, 98108
206-767-5060 main
206-957-2429 direct
206-767-5063 fax
heidi.geri@pacelabs.com

>>> "Michael Pickering" <mpickering@ashcreekassociates.com> 4/21/2010 12:51 PM >>>

Yes, the Port does not want to run any of the other samples. Please finalize.

Thanks!

*Michael

From: Heidi Geri [mailto:Heidi.Geri@pacelabs.com]
Sent: Wednesday, April 21, 2010 11:04 AM
To: Michael Pickering
Subject: RE: 253443_T4S1
Importance: High

Hi Michael,

Have you heard anything back yet about the on-hold samples?

HexChrom Soil has a 30-day holding time. These samples will expire on May 2nd, which is a Sunday.

I need to hear back by early next week (Monday or Tuesday at the latest) if we need to schedule them for processing. They do have to digest; after that we have 24 hours to analyze.

Thanks.

Thank you,

Heidi Geri
Project Manager
Pace Analytical

940 S Harney St
Seattle WA, 98108
206-767-5060 main
206-957-2429 direct
206-767-5063 fax
heidi.geri@pacelabs.com

Pace Seattle has transitioned to a paperless reporting system. Reports are available via email or on-line through Pace Port. If you have not registered for Pace Port, Pace's on-line report system, please contact your Project Manager or Sales Representative for details.

>>> "Michael Pickering" <mpickering@ashcreekassociates.com> 4/19/2010 9:54 AM >>>
I have a msg into the Port and will let you know what they decide.

Thanks!

*Michael

From: Heidi Geri [mailto:Heidi.Geri@pacelabs.com]
Sent: Friday, April 16, 2010 2:25 PM
To: Michael Pickering
Subject: 253443_T4S1

Hi Michael,

Heidi Geri - total chromium

From: "Michael Pickering" <mpickering@ashcreekassociates.com>
To: <Heidi.Geri@pacelabs.com>
Date: 4/6/2010 2:03 PM
Subject: total chromium

whichever gives lowest limits. 6010? thx.

CHAIN OF CUSTODY RECORD

253443

Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants

Client Name: Ash Creek Associates
Address: 9615 SW Allen Blvd #106
City/State/Zip: Beaverton, OR 97005

Telephone Number: 503.924.4704
Fax No.: 503.924.4707

Project Manager: M. Pickering
Project Name: T4S1
Project Number: 1065
Sampler Name: M. Whitson

Analytical Lab: Pace Analytical
Report To: M. Pickering
Page: 1 of 1

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Ice	HNO_3 (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass(Yellow Label)	None (Black Label)	Other (Specify)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	Analyze For: Hexavalent Chromium	Total Chromium	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report
T4S1-TP-SE-1.0	4/2/10	1525	1	X			X						X						X		X	X		X		
T4S1-TP-SE-2.0	4/2/10	1530	1	X			X						X						X		H	H		X		
T4S1-TP-E-1.0	4/2/10	1535	1	X			X						X						X		H	H		X		
T4S1-TP-E-2.0	4/2/10	1540	1	X			X						X						X		H	H		X		
T4S1-TP-S-1.0	4/2/10	1545	1	X			X						X						X		H	H		X		
T4S1-TP-S-2.0	4/2/10	1550	1	X			X						X						X		H	H		X		

Special Instructions: Bill to Ash Creek using Port of Portland rates

H = Hold

Method of Shipment:

Laboratory Comments:
Temperature Upon Receipt: 5.2
VOCs Free of Headspace? Y (N/A)

Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
M. Whitson	4/5/2010	1230		4/5	13:20
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
				4/6/10	1120
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

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DATE 4.5.10

PLEASE PRINT

COMPLETE SHIPPER NAME: Ash Creek			PHONE #	
FULL STREET ADDRESS (NO PO BOXES): 3015 S.W. 1st Ave	CITY: Portland	STATE: OR	ZIP: 97201	
COMPLETE RECIPIENT NAME: Pace			PHONE #	
FULL STREET ADDRESS (NO PO BOXES): 940 S. Henney St	CITY: Seattle	STATE: WA	ZIP: 98108	

BILL TO ☐ SHIPPER ☐ RECIPIENT ☐ 3RD PARTY

Refused or returned freight is charged at full rate

3RD PARTY INFORMATION	NAME	ADDRESS	CITY	STATE	ZIP

Pieces	Full Pallets	Half Pallets	DESCRIPTION / COMMODITY	WEIGHT (Subject to confirmation)
1			Cooler	20

Shipper Signature: _____ Date: _____

Printed Name: _____ Time: _____

Receiver Signature: _____ Date: 4/6/10

Printed Name: B Kinnier Time: 11:30

☐ SIGNATURE REQUIRED
☐ OVERNIGHT ☐ SAME DAY

Pick-up Driver: _____

Delivery Driver: _____

COD AMOUNT

$

DAY SERVICE ONLY

☐ DIM WEIGHT

COD shipments billed to Shipper only.

ALL SHIPMENTS ARE SUBJECT TO THE TERMS & CONDITIONS ON BACK.

RECEIVER

Form # BOL-CON (7/09)

Attach Tracking Labels Here